REMARKS

Reconsideration and allowance of the present application based on the foregoing amendments and the following remarks are respectfully requested.

Claims 17-24, 31-32 and 35-36 are currently pending in the present application. Claims 1-16, 25-30 and 33-34 have been cancelled.

Formalities

In a number of the claims, cosmetic amendments have been made to use consistent language. For example, in certain instances, the Applicants' representative noticed that the terms "flange" and "flange portion" were used to refer to the same structure. The claims have been amended to use consistent terminology, but those changes should not be regarded as narrowing the claim scope.

Prior Art Rejections

Independent Claims

The Examiner rejected all independent claims over the combination of Sykes, Perisho and Kanemitsu. The independent product claims (and their dependent claims) have been cancelled, and the independent method claims 17, 23 and 31 (and their dependent claims) remain pending. The cancellation of the product claims is made without prejudice or disclaimer, and the method claims are being pursued to focus examination on the Applicants' method of making a brake actuator. The Applicants respectfully request the Examiner to reconsider the rejections against the method claims in view of the following distinguishing remarks.

Admittedly, Sykes teaches the basic components of a brake actuator, but it lacks the integral relationship between the cam or cam-and-drum member and the flange portion that is deformed into the general U-shape, as recited in the independent claims. To make up for this deficiency, the Examiner cites to Perisho as showing a brake actuator where the cam member is one-piece, but notes that it "fails to teach the method of forming the cam-and-drum member, or the cam-and drum member being a sheet metal element." Official Action at 3. To make up for this further deficiency, the Examiner relies on Kanemitsu as showing forming of sheet metal.

The Applicants submit that it would not be obvious to modify Perisho so that its cam is formed from a sheet metal member, because to do so would defeat the advantages taught in the Perisho patent. In Perisho, the structure 124 (referred to as a cable track) that corresponds to the claimed cam member is made from a powdered metal process. The patent discloses that the metal is porous, and specifically points out the advantage of impregnating the structure with damping oil. Perisho at column 3, lines 18-25, and column 5, lines 48-61.

This cannot be achieved when using a sheet metal forming process, such as stamping. Powered metal processes are vastly different from stamping, and consist of compressing powdered metal at high pressure to fuse the powder together into the final part. Because the metal is powdered, the formed part can have a level of porosity. And this porosity enables the structure 124 in Perisho to be impregnated with oil, which is identified as being an advantage of the Perisho construction.

If one were to modify the construction in Perisho such that it is made in accordance with the method claims of this application, that advantage would be lost. Stamped or otherwise formed sheet metal cannot be made with sufficient porosity for oil impregnation and still be used as a practical matter in the claimed context.

Further, nothing in the art of record, including specifically Perisho and Kanemitsu, provide any suggestion or motivation for modifying the Perisho cam member in the manner claimed by the Applicants. Indeed, as noted above, to do so would eliminate a key advantage of the powdered metal cam in Perisho. This modification of Perisho is contrary to its own teachings.

Each of the independent claims recites that its cam member (or cam-and-drum member) has a sheet metal flange portion that is deformed into the recited U-shape. Claim 17 expressly defines the flange portion as being sheet metal; claim 23 defines the cam-and-drum member as being made from a single piece of sheet metal and as including the flange portion (which hence must be part of the same single piece of sheet metal); and claim 31 recites that the cam member is stamped from a piece of sheet metal to form the cam member with the flange portion. Because, for the reasons advanced above, it would not be obvious to modify Perisho's cam member 124 to be formed of sheet metal so that it has a sheet metal flange portion, the Applicants respectfully submit that each of these independent claims is patentable.

Dependent Claims

Dependent claims 18-22, 24, 32, 35 and 36 depend from the independent claims. These claims are submitted to be patentable based on the dependency from those independent claims, and for the reason that they recite additional patentable features.

Certain of the dependent claims warrant separate discussion.

Claim 22 depends from claim 21, which depends from claim 19, and in turn claims 17 and 18. As a result, from claim 19 the cam member is "formed separately from the brake actuator lever," and forming the cam member comprises "forming a piece of sheet metal to initially form a cam member having the sheet metal flange portion; and then deforming the flange into the general U-shape so as to define the cable guide." Claim 21 recites that this initial forming is by stamping. And claim 22 recites that "deforming said flange portion into a general U-shape includes stamping the flange portion such that said flange portion extends at an angle from the cam member and the subsequently stamping a free end of said flange portion to form the flange portion into the general U-shape." Thus, claim 22 recites multiple stampings to create the cam member and the flange portion, and then form the flange portion into its general U-shape.

The art applied to the claims does not teach a process where the flange is deformed into the general U-shape by at least two stampings to first stamp the flange portion at an angle, and then stamp it to form it into the general U-shape. Sykes does not teach this, and Perisho does not because it is formed by a powdered metal process. Kamemitsu also fails to teach this feature, because it teaches a swaging and splitting-type method to create its U-shaped portion. That is, the material is first formed in a manner similar to swaging to create a thick bulb, and then that bulb is split to create a groove. This is clearly not a stamping process, which requires a die to be struck against the sheet metal on a supporting die with high force to bend, draw, or cut the sheet metal into a shape.

Accordingly, claim 22 is submitted to be separately patentable.

Claim 32 similarly recites at least two stampings extending the flange portion from the cam member, and then forming it into the general U-shape. Thus, for the same reasons as claim 22, claim 32 is also submitted to be separately patentable.

Claim 35 depends from independent claim 17 and further defines the method to one where the cam member is on a wall of the brake lever, and the flange portion is stamped from that wall. That is, the cam member is not a separate structure at all, but rather is part of the actuator lever's wall. This advantageously avoids the need for any separate components in this regard. This is not taught anywhere in the art of record, and there is no suggestion for modifying the references to arrive at this invention. Therefore, claim 35 is submitted to be separately patentable.

Claim 36 depends from claim 35 and recites that the sheet metal flange portion is formed into the general U-shape by "stamping a free end of the flange portion, after being stamped from the wall, to form the general U-shape." For reasons similar to those advanced above with respect to claim 22, nothing in the art of record teaches this secondary stamping to create the U-shape. Therefore, claim 36 is also submitted to be separately patentable.

Conclusion

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance, and a Notice to that effect is requested.

If the Examiner has any questions or suggestions for facilitating the prosecution of this application, she is encouraged to contact the undersigned at the below-listed telephone number.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,
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